2006-08 SUSPENSION

Front Suspension Civic (All Except Hybrid)

KNUCKLE/HUB/WHEEL BEARING REPLACEMENT

EXPLODED VIEW

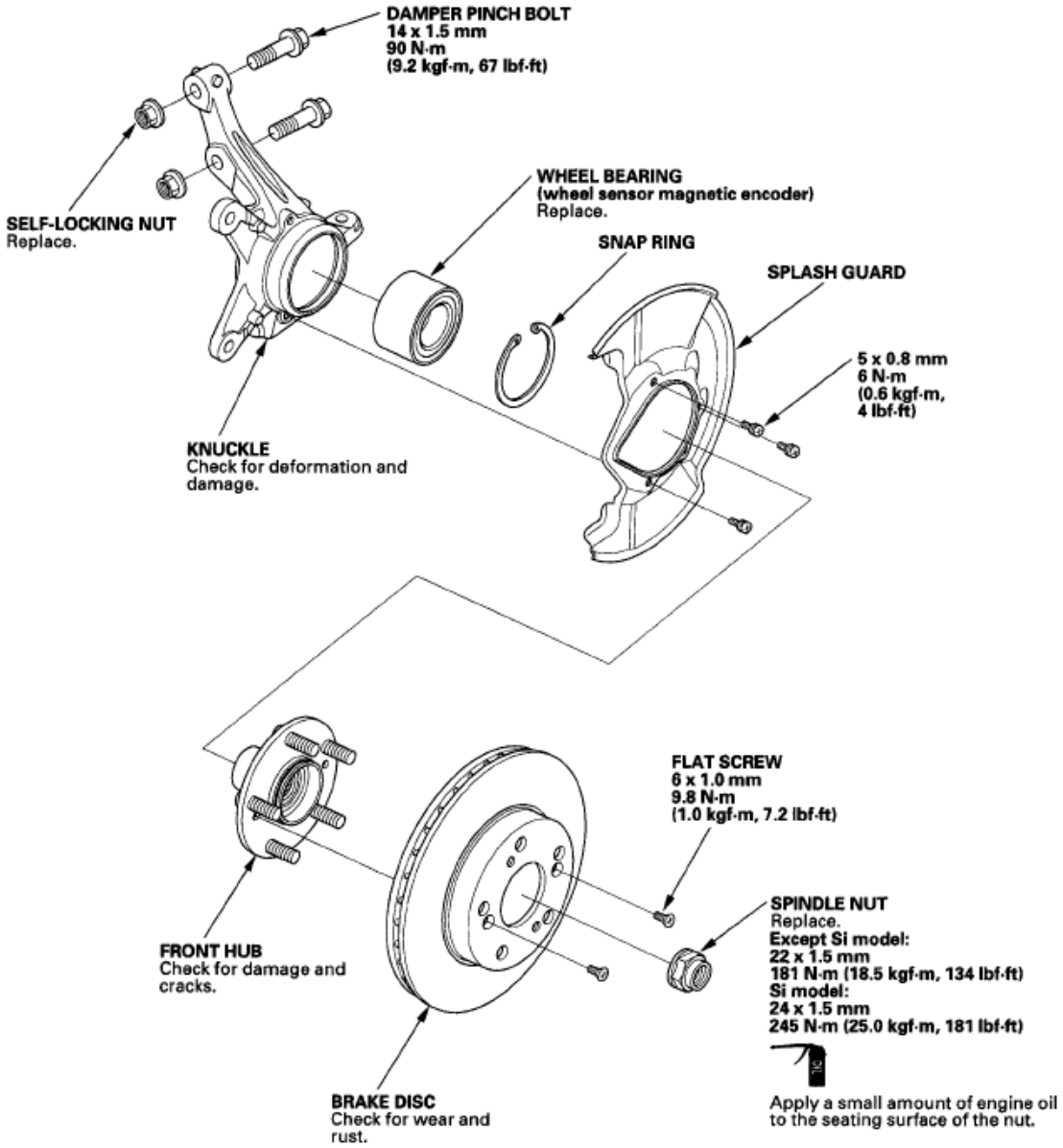

Fig. 1: Exploded View Of Knuckle/Hub/Wheel Bearing (With Torque Specifications)

Special Tools Required

- Hub dis/assembly tool 07GAF-SD40100
- Hub dis/assembly tool 07GAF-SE00100
- Ball joint remover, 32 mm 07MAC-SL0A102
- Ball joint remover, 28 mm 07MAC-SL0A202
- Ball joint thread protector, 14 mm 071AF-S3VA000
- Attachment, 62 x 68 mm 07746-0010500
- Driver 07749-0010000
- Attachment, 96 mm 07948-SB00101
- Support base 07965-SD90100

KNUCKLE/HUB REPLACEMENT

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **LIFT AND SUPPORT POINTS**).
2. Remove the wheel nuts (A) and the front wheel.

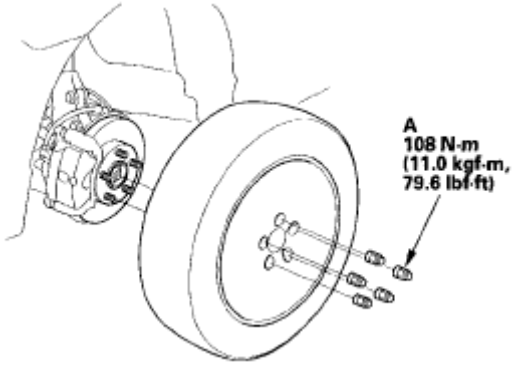

Fig. 2: Identifying Front Wheel And Nut (With Torque Specifications)

3. Remove the brake hose mounting bolt (A).

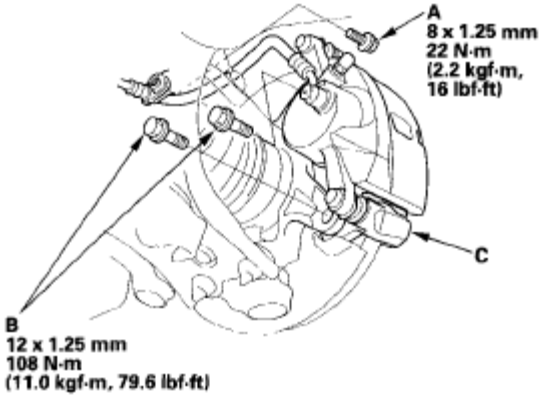

Fig. 3: Identifying Brake Hose Mounting Bolt (With Torque Specifications)

4. Remove the brake caliper bracket mounting bolts (B), and remove the caliper assembly (C) from the knuckle. To prevent damage to the caliper assembly or brake hose, use a short piece of wire to hang the caliper assembly from the undercarriage. Do not twist the brake hose excessively.
5. Remove the wheel sensor (A) from the knuckle (B). Do not disconnect the wheel sensor connector.

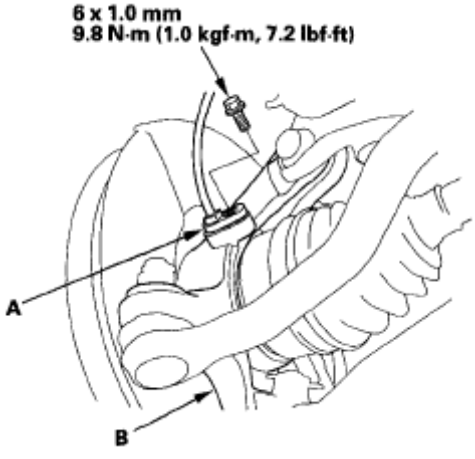

Fig. 4: Identifying Wheel Sensor And Knuckle (With Torque Specifications)

6. Raise the stake (A), then remove the spindle nut (B).

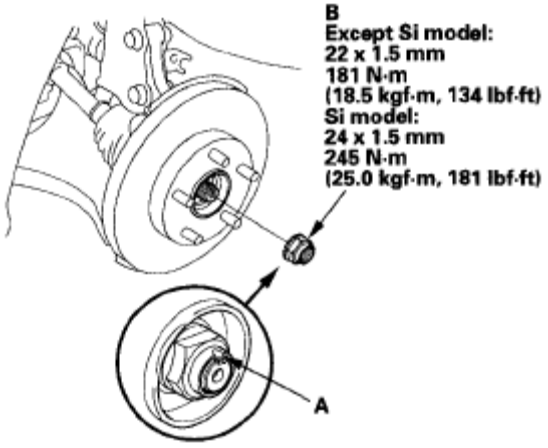

Fig. 5: Identifying Spindle Nut (With Torque Specifications)

7. Remove the 6 mm brake disc retaining screws (A).

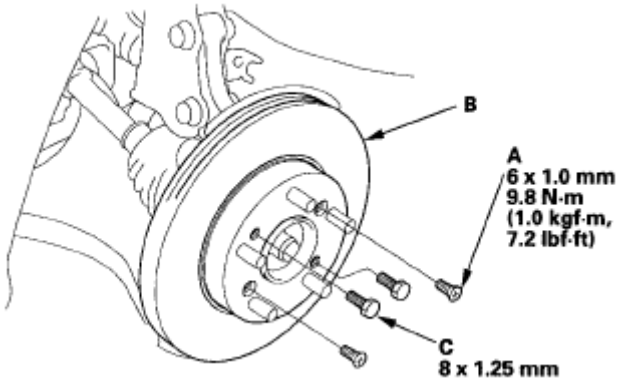

Fig. 6: Identifying Brake Disc Retaining Screws (With Torque Specifications)

8. Remove the brake disc (B) from the hub.

NOTE: If the brake disc has clung to the hub. Screw two 8 x 1.25 mm bolts (C) into the brake disc to push it away from the hub. Turn each bolt 90 degrees to prevent the brake disc from binding.

9. Check the front hub for damage and cracks.
10. Remove the cotter pin (A) from the tie-rod end ball joint, then remove the nut (B).

NOTE: During installation, install the new cotter pin after tightening the nut, and bend its end as shown.

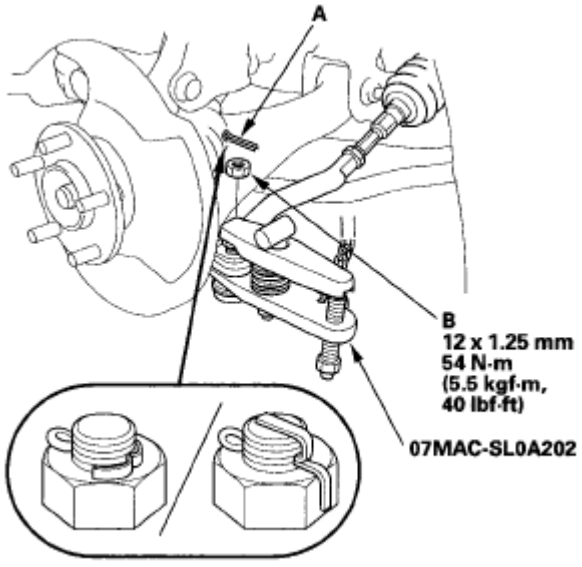

Fig. 7: Identifying Cotter Pin Position (With Torque Specifications)

11. Disconnect the tie-rod ball joint from the knuckle using the ball joint remover (see **BALL JOINT REMOVAL**).
12. Remove the flange bolt and flange nuts from the lower arm (A).

NOTE: During installation, install a new flange bolt and new flange nuts. After lightly tightening all three fasteners, tighten them to the specified torque in the following order; the nut on the front (B), the nut on the rear (C), then the bolt (D).

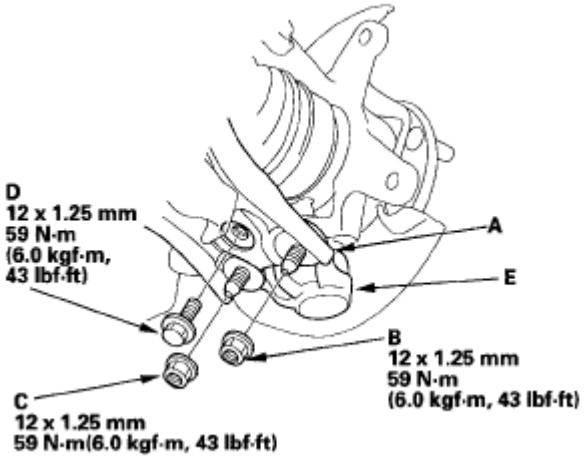

Fig. 8: Identifying Lower Ball Joint (With Torque Specifications)

13. Disconnect the lower ball joint (E) from the lower arm.
14. Remove the damper pinch bolts (A) and the self-locking nuts (B) from the damper.

NOTE: During installation, install the new damper pinch bolts and the new self-locking nuts.

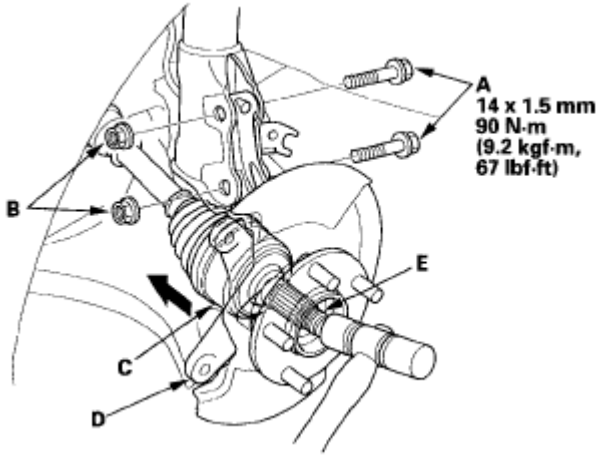

Fig. 9: Identifying Damper Pinch Bolts (With Torque Specifications)

15. Remove the driveshaft outboard joint (C) from the knuckle (D) by tapping the driveshaft end (E) with a plastic hammer while drawing the hub outward, then remove the knuckle.

NOTE:

- **Do not pull the driveshaft end outward. The inner driveshaft joint may come apart.**
- **During installation, apply grease to the mating surface of the wheel bearing and driveshaft outboard joint (see DRIVESHAFT INSTALLATION).**

16. Remove the lock pin (A) from the lower ball joint pin (B), then remove the nut (C).

NOTE: During installation, install a lock pin after tightening the new castle nut.

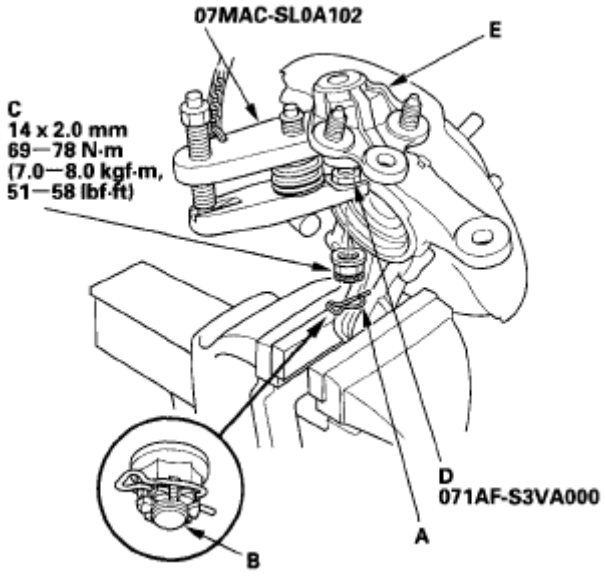

Fig. 10: Identifying Lower Ball Joint Pin (With Torque Specifications)

17. Install the ball joint thread protector (D).
18. Disconnect the lower ball joint (E) from the knuckle using the ball joint remover (see **BALL JOINT REMOVAL**).
19. Install the knuckle/hub in the reverse order of removal, and note these items:
    - Be careful not to damage the ball joint boot when installing the knuckle.
    - Tighten all mounting hardware to the specified torque values.
    - Before connecting the lower ball joint to the knuckle, degrease the threaded section and tapered portion of the ball joint pin, the knuckle

connecting hole, the threaded section, and mating surface of the castle nut.

- First install all the components, and lightly tighten the bolts and nuts, then raise the suspension to load it with the vehicle's weight before fully tightening to the specified torque values.
- Torque the castle nut to the lower torque specification, then tighten it only far enough to align the slot with the ball joint pin hole. Do not align the castle nut by loosening it.
- Use a new spindle nut during reassembly.
- Before installing the spindle nut, apply a small amount of engine oil to the seating surface of the nut. After tightening, use a drift to stake the spindle nut shoulder against the driveshaft.
- Before installing the brake disc, clean the mating surface of the front hub and the inside of the brake disc.
- Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.
- Check the wheel alignment, and adjust it if necessary (see **WHEEL ALIGNMENT**).

WHEEL BEARING REPLACEMENT

1. Separate the hub (A) from the knuckle (B) using the hub dis/assembly tool and a hydraulic press. Hold the knuckle with the attachment (C) of the hydraulic press or equivalent tool. Be careful not to deform the splash guard. Hold onto the hub to keep it from falling when pressed clear.

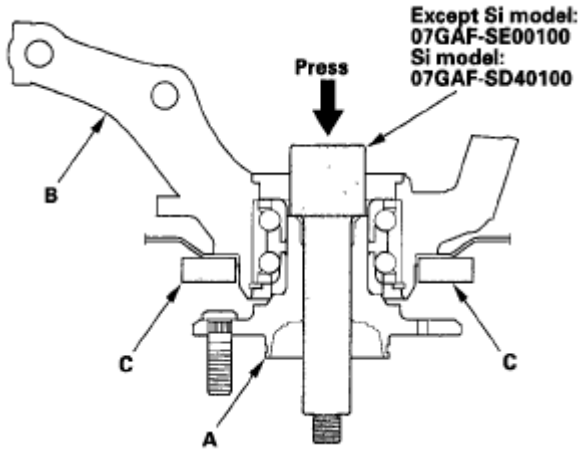

Fig. 11: Separating Hub From Knuckle

2. Press the wheel bearing inner race (A) off of the hub (B) using the hub dis/assembly tool, a commercially available bearing separator (C), and a press.

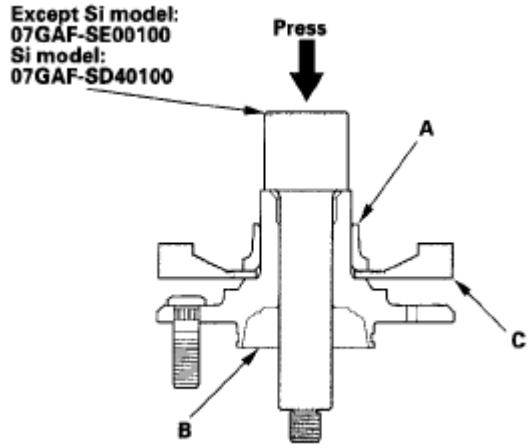

Fig. 12: Pressing Wheel Bearing Inner Race

3. Remove the splash guard (A) and the snap ring (B) from the knuckle (C).

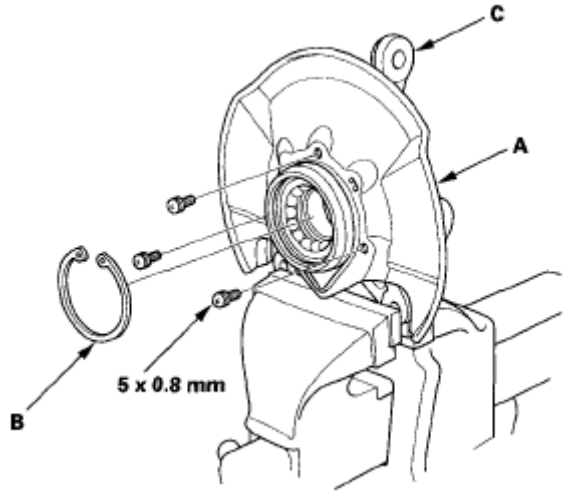

Fig. 13: Identifying Splash Guard And Snap Ring

4. Press the wheel bearing (A) out of the knuckle (B) using the attachment, the driver, and a press.

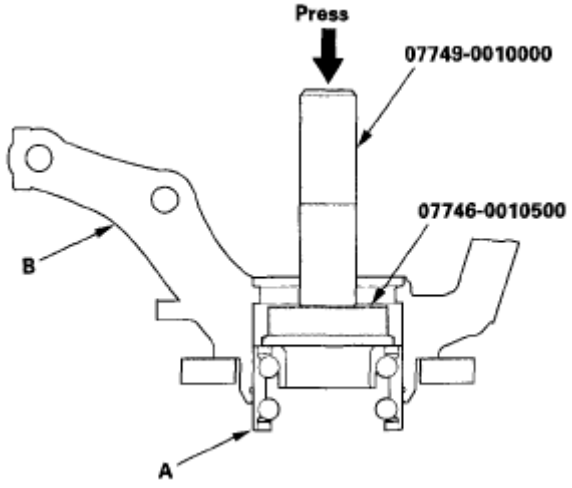

Fig. 14: Pressing Wheel Bearing Out Of Knuckle

5. Wash the knuckle and hub thoroughly in high flashpoint solvent before reassembly.
6. Press a new wheel bearing (A) into the knuckle (B) using the old bearing (C), a steel plate (D), the attachment, the support base, and a press.

NOTE:

- **Install the wheel bearing with the wheel sensor magnetic encoder (E) (brown color), toward the inside of the knuckle.**
- **Remove any oil, grease, dust, metal debris, and other foreign material from the encoder surface.**
- **Keep all magnetic tools away from the encoder surface.**
- **Be careful not to damage the encoder surface when you insert the wheel bearing.**

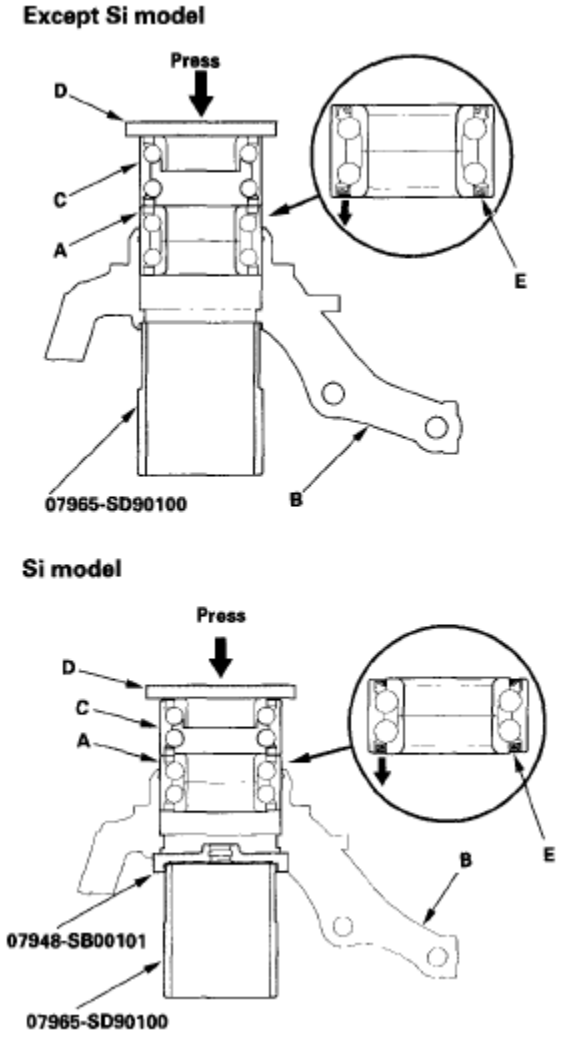

Fig. 15: Pressing Wheel Bearing Into Knuckle

7. Install the snap ring (A) securely in the knuckle (B).

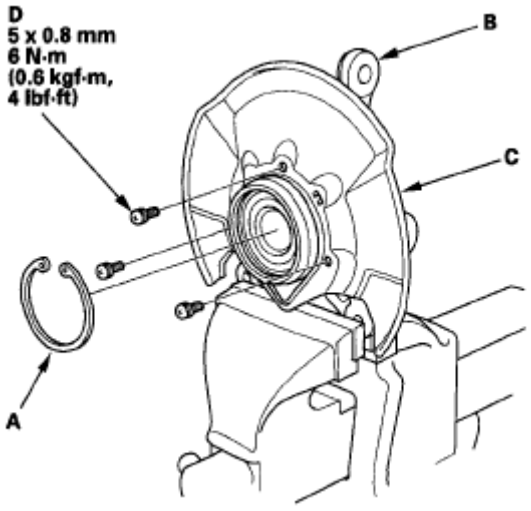

Fig. 16: Identifying Snap Ring In Knuckle (With Torque Specifications)

8. Install the splash guard (C), and tighten the screws (D) to the specified torque value.
9. Install the hub (A) onto the knuckle (B) using the attachment, the driver, the support base, and a hydraulic press. Be careful not to distort the splash guard (C).

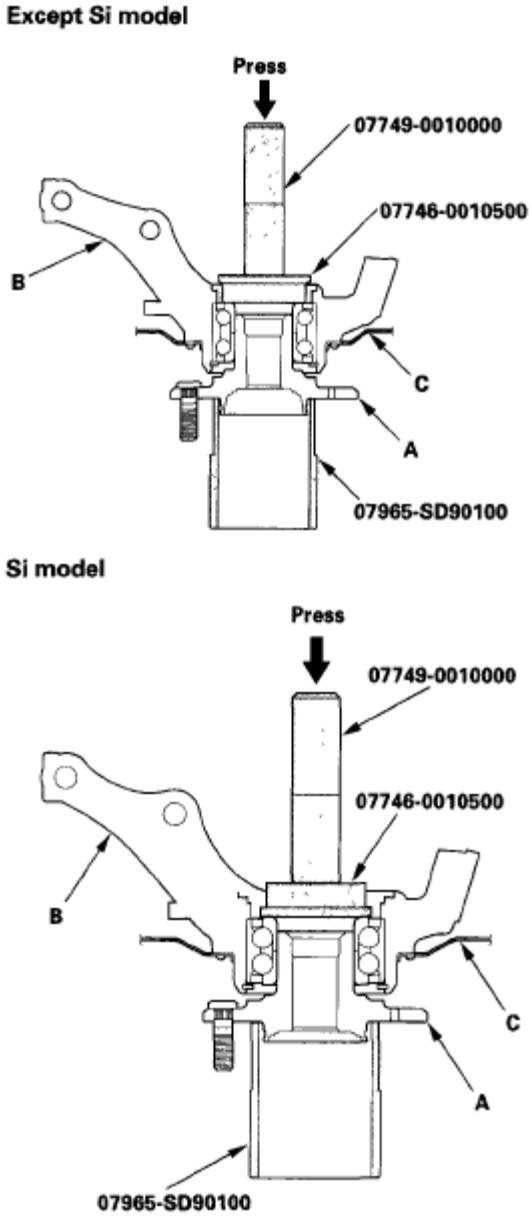

Fig. 17: Installing Hub Onto Knuckle

LOWER BALL JOINT REPLACEMENT

Special Tools Required

- Ball joint remover, 32 mm 07MAC-SL0A102
- Ball joint thread protector, 14 mm 071AF-S3VA000

1. Remove the front wheel (see **KNUCKLE/HUB REPLACEMENT**).

2. Remove the flange bolt and flange nuts from the lower arm (A).

NOTE: During installation, install a new flange bolt and new flange nuts. After lightly tightening all three fasteners, tighten them to the specified torque in the following order; the nut on the front (B), the nut on the rear (C), then the bolt (D).

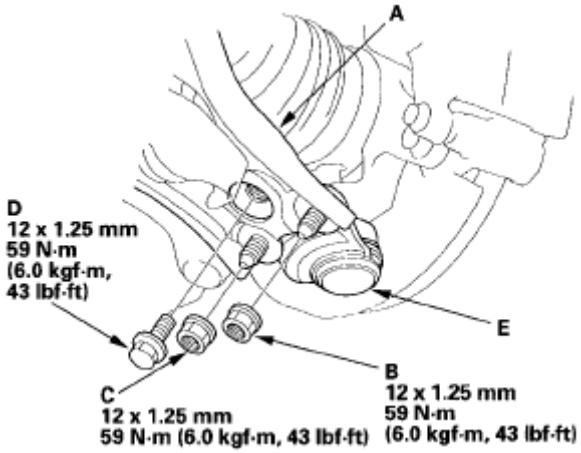

Fig. 18: Tightening Bolts (With Torque Specifications)

3. Disconnect the lower ball joint (E) from the lower arm.
4. Remove the spindle nut (see step 6), and remove the outboard joint (A) from the knuckle (B) by tapping the driveshaft end (C) with a plastic hammer while drawing the hub outward.

NOTE:

- **Do not pull the driveshaft end outward. The inner driveshaft joint may come apart.**
- **During installation, apply grease to the mating surface of the wheel bearing and driveshaft outboard joint (see DRIVESHAFT INSTALLATION).**

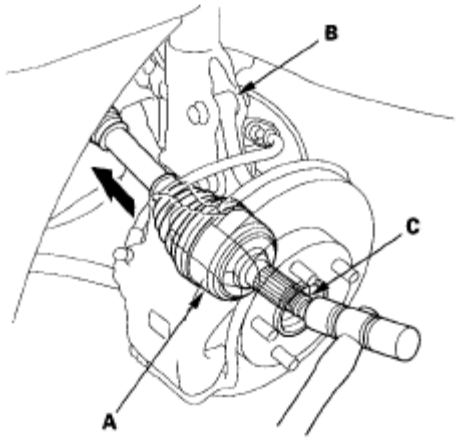

Fig. 19: Tapping Driveshaft

5. Remove the lock pin (A) from the lower ball joint pin (B), then remove the castle nut (C).

NOTE: During installation, install a lock pin after tightening the new castle nut.

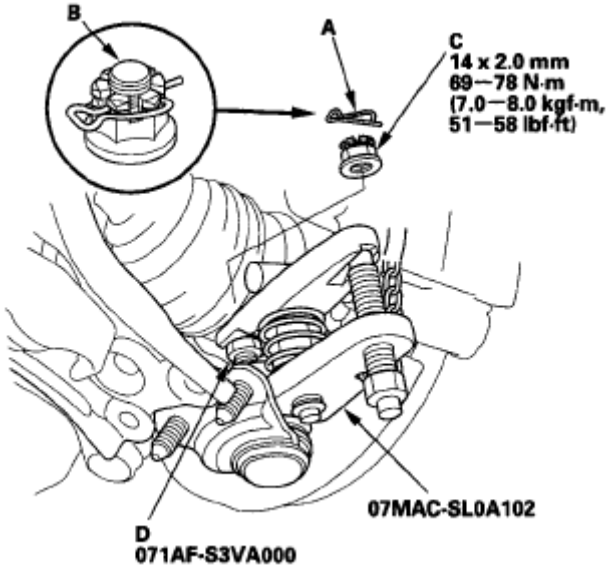

Fig. 20: Identifying Lock Pin And Lower Ball Joint Pin (With Torque Specifications)

6. Install the ball joint thread protector (D).
7. Disconnect the lower ball joint from the knuckle using the ball joint remover

(see **BALL JOINT REMOVAL**), then remove the lower ball joint.

8. Install the lower ball joint in the reverse order of removal, and note these items:
   - First install all the components, and lightly tighten the bolts and nuts, then tighten the lower ball joint to the lower arm to the specified torque. Raise the suspension to load it with the vehicle's weight before fully tightening the lower ball joint to the knuckle to the specified torque values.
   - Tighten all mounting hardware to the specified torque values.
   - Use a new spindle nut during reassembly.
   - Before installing the wheel, clean the mating surface of the brake disc and inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see **WHEEL ALIGNMENT**).

BALL JOINT BOOT REPLACEMENT

Special Tools Required

Attachment, 40 mm 07GAF-SE00200

1. Remove the lower ball joint (see **LOWER BALL JOINT REPLACEMENT**).
2. Remove the boot clip and the boot.
3. Pack the interior and lip (A) of a new boot with grease. Keep the grease off of the boot-to-lower ball housing mating surfaces (B).

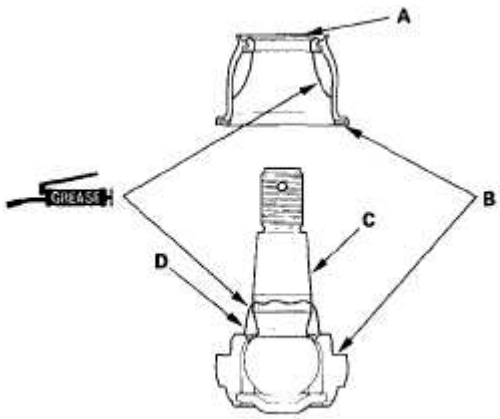

Fig. 21: Identifying Area Applying Grease

4. Wipe the grease off the tapered portion of the pin (C), and pack fresh grease into the base (D). Do not let dirt or other foreign materials get into the boot.
5. Install the boot on the ball joint, then squeeze it gently to force out any air.
6. Press the boot with the attachment until the bottom seats on the lower ball housing (A) all the way around.

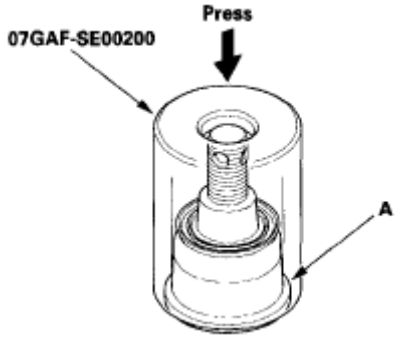

Fig. 22: Pressing Boot With Attachment Until Bottom Seats On Lower Ball Housing

7. After installing a boot, wipe any grease off the exposed portion of the ball joint pin.
8. Install the lower ball joint (see **LOWER BALL JOINT REPLACEMENT**).

LOWER ARM REMOVAL/INSTALLATION

Special Tools Required

- Bushing driver 07AAF-SVAA100
- Receiver set 07AAF-SVAA200

REMOVAL/INSTALLATION

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **LIFT AND SUPPORT POINTS**).
2. Remove the center cap and front wheel.
3. Remove the flange nut (A) while holding the respective joint pin (B) with a

hex wrench (C), then disconnect the stabilizer links from the lower arm (D).

NOTE: Use a new flange nut during reassembly.

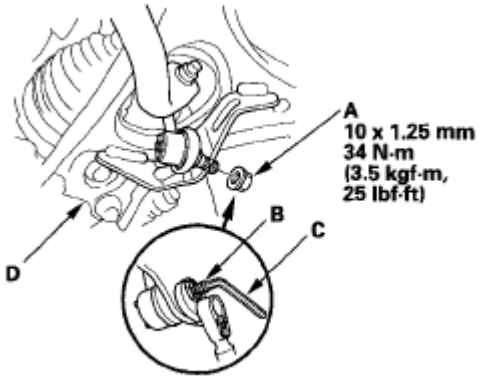

Fig. 23: Identifying Respective Joint Pin With Hex Wrench (With Torque Specifications)

4. Turn the stabilizer bar backward to gain easier access to the front side of the lower arm mounting bolt.
5. Remove the flange bolt and flange nuts from the lower arm (A).

NOTE: During installation, install a new flange bolt and new flange nuts. After lightly tightening all three fasteners, tighten them to the specified torque in the following order; the nut on the front (B), the nut on the rear (C), then the bolt (D).

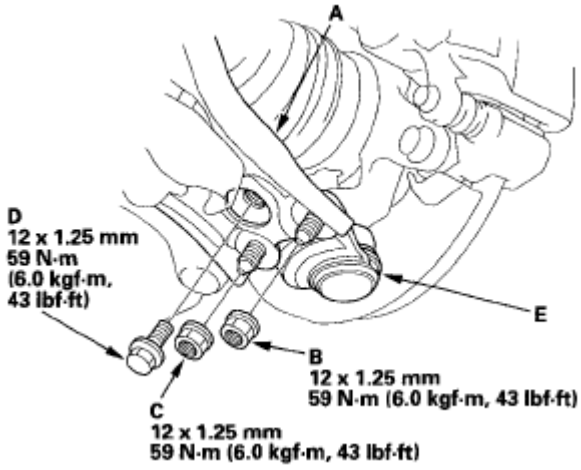

Fig. 24: Identifying Lower Arm Bolts (With Torque Specifications)

6. Disconnect the lower ball joint (E) from the lower arm.
7. Remove the lower arm mounting bolt (A).

NOTE: During installation, install a new mounting bolt.

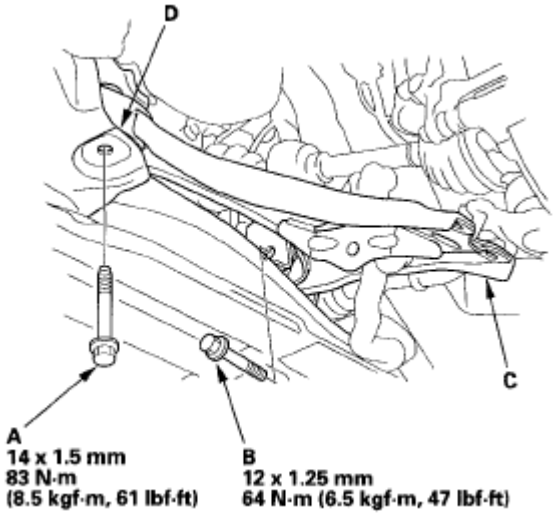

Fig. 25: Identifying Lower Arm Mounting Bolt (With Torque Specifications)

8. Remove the lower arm mounting bolt (B), then remove the lower arm (C) from the front suspension subframe (D).

NOTE: During installation, install a new mounting bolt.

9. Install the lower arm in the reverse order of removal, and note these items:
   - First install all the components, and lightly tighten the bolts and nuts, then tighten the lower ball joint to the lower arm to the specified torque. Raise the suspension the lower ball joint to the knuckle and the lower arm to the subframe to load it with the vehicle's weight before fully tightening to the specified torque.
   - Tighten all mounting hardware to the specified torque values.
   - Before installing the wheel, clean the mating surface of the brake disc and the inside of the wheel.

- Check the wheel alignment, and adjust it if necessary (see **WHEEL ALIGNMENT**).

BUSHING REPLACEMENT

NOTE: Replace the lower arm (A) as an assembly if the lower arm has the paint mark (B) around the hole near the front bushing. The paint mark can also be seen around a hole on the bottom side of the lower arm in the same area. Paint marks indicate a oversize bushing has been installed.

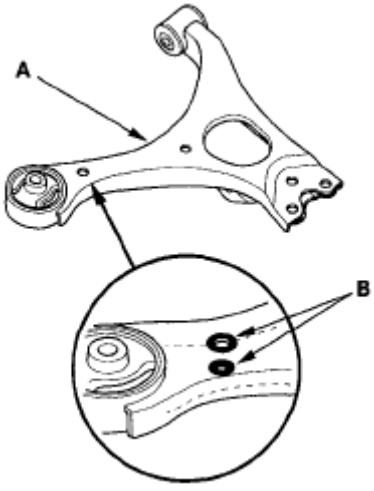

Fig. 26: Identifying Paint Mark On Lower Arm

1. Press out the bushing (A) with the bushing driver, receiver set (attachment A) and a hydraulic press, and remove the bushing from the lower arm (B).

NOTE: Be careful not to damage the inside of the bushing hole when pressing on the bushing.

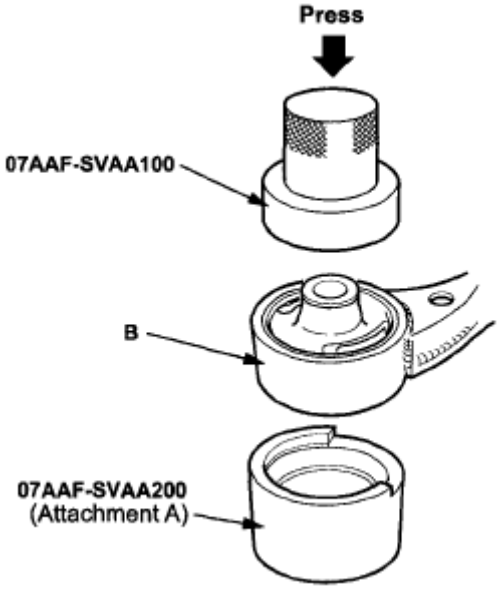

Fig. 27: Pressing Out Bushing

2. Clean the mating surface of the new bushing and the lower arm.
3. Position the tab (A) of the bushing (B) with the lower arm (C) as shown.

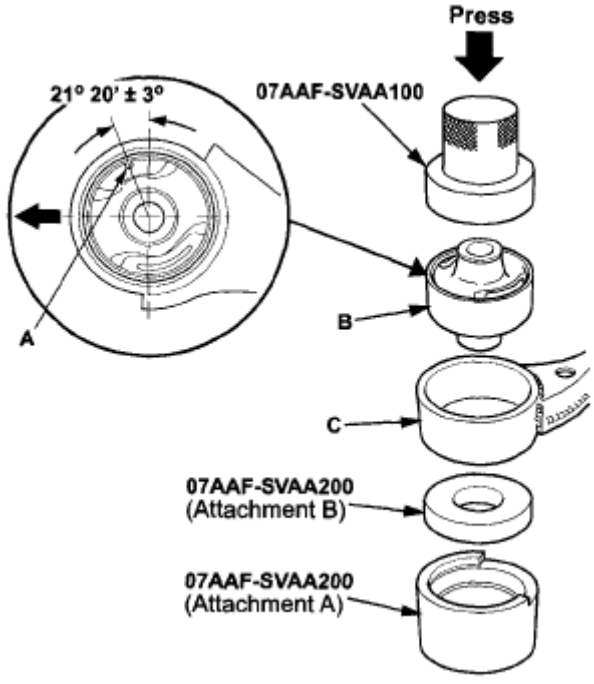

Fig. 28: Identifying Tab Position

4. Using a hydraulic press, bushing driver, and receiver set attachments, press in

the bushing into the lower arm.

5. Using a yellow oil-based paint marker, paint a mark (A) around the hole (B) near the front bushing (C). Also paint a mark around the hole on the bottom side of the lower arm in the same area.

NOTE: These marks are used to identify a lower control arm that has had the bushing replaced. Do not replace the bushing in a lower arm with there paint marks; you must replace the lower arm.

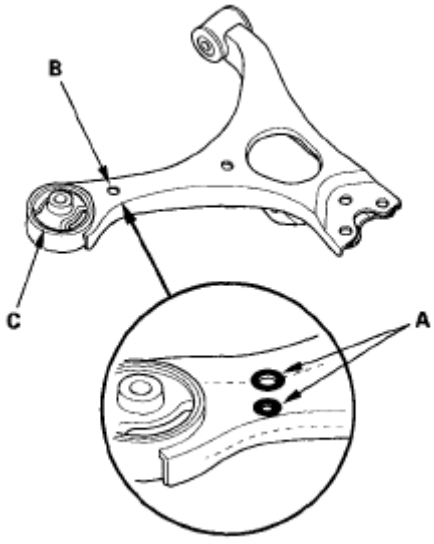

Fig. 29: Identifying Paint Marks On Lower Arm

STABILIZER LINK REMOVAL/INSTALLATION

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **LIFT AND SUPPORT POINTS**).
2. Remove the front wheel.
3. Remove the self-locking nut (A) and the flange nut (B) while holding the respective joint pin (C) with a hex wrench (D), then remove the stabilizer link (E).

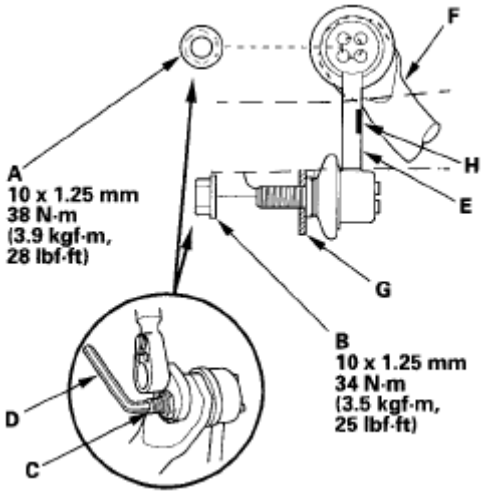

Fig. 30: Identifying Self-Locking Nut (With Torque Specifications)

4. Install the stabilizer link on the stabilizer bar (F) and lower arm (G) with the joint pins set at the center of their range of movement.

NOTE: The stabilizer link has a paint mark (H). Align the paint mark on the stabilizer link facing rearward.

5. Install a new self-locking nut and a new flange nut, and lightly tighten them.
6. Place a jack under the lower arm, and raise the suspension to load it with the vehicle's weight.
7. Tighten the self-locking nut and flange nut to the specified torque values while holding the respective joint pin with a hex wrench.
8. Reinstall all removed parts and test-drive the vehicle.
9. After 5 minutes of driving, torque the self-locking nut again to the specified torque value.

STABILIZER BAR REPLACEMENT

1. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **LIFT AND SUPPORT POINTS**).
2. Remove the front wheels.
3. Disconnect both stabilizer links from the stabilizer bar (see **STABILIZER LINK REMOVAL/INSTALLATION**).

4. Remove the flange bolts (A) and the bushing holders (B), then remove the bushings (C) and the stabilizer bar (D) from the front suspension subframe (E).

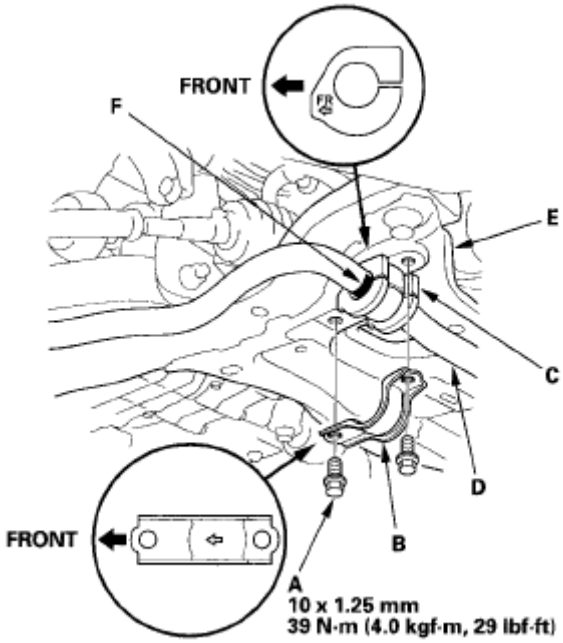

Fig. 31: Identifying Flange Bolts And Bushing Holders

5. Install the stabilizer bar in the reverse order of removal, and note these items:
   - Note the right and left direction of the stabilizer bar.
   - Align the paint marks (F) on the stabilizer bar with the sides of the bushings.
   - Note the fore/aft direction of the bushing holders.
   - Refer to **STABILIZER LINK REMOVAL/INSTALLATION** to connect the stabilizer bar to the links .
   - Before installing the wheel, clean the mating surface of the brake disc and inside of the wheel.
   - Check the wheel alignment, and adjust it if necessary (see **WHEEL ALIGNMENT**).

DAMPER/SPRING REMOVAL AND INSTALLATION

REMOVAL

1. Turn the ignition switch ON (II), then turn on the windshield wipers. Turn the ignition switch off when the wipers are near the A-pillars.
2. Raise the front of the vehicle, and support it with safety stands in the proper locations (see **LIFT AND SUPPORT POINTS**).
3. Remove the front wheel.
4. Remove the wheel sensor harness clip (A) and the brake hose bracket (B) from the damper. Do not disconnect the wheel sensor connector.

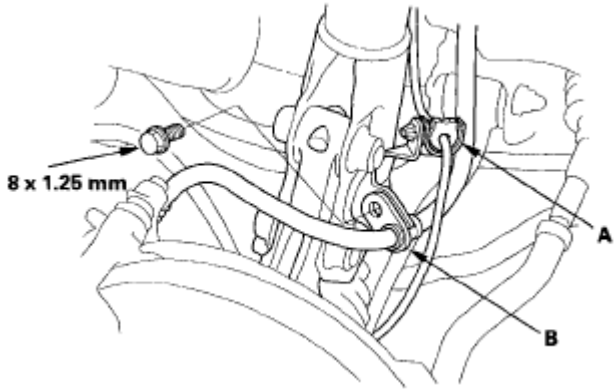

Fig. 32: Identifying Wheel Sensor Harness Clip And Brake Hose Bracket

5. Remove the damper pinch bolts (A) and self-locking nuts (B) from the damper.

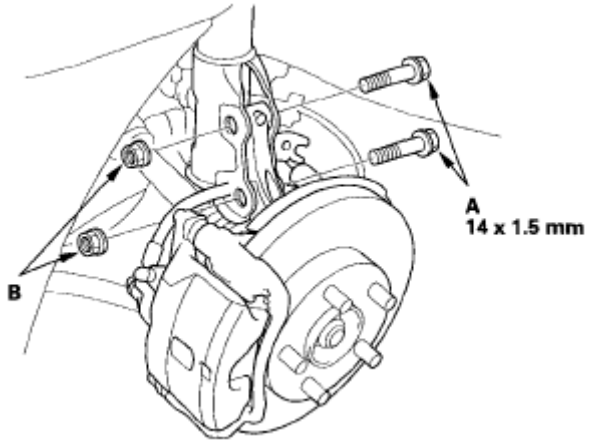

Fig. 33: Identifying Damper Pinch Bolts And Self-Locking Nuts

6. Remove the service cap (A) and the lid (B).

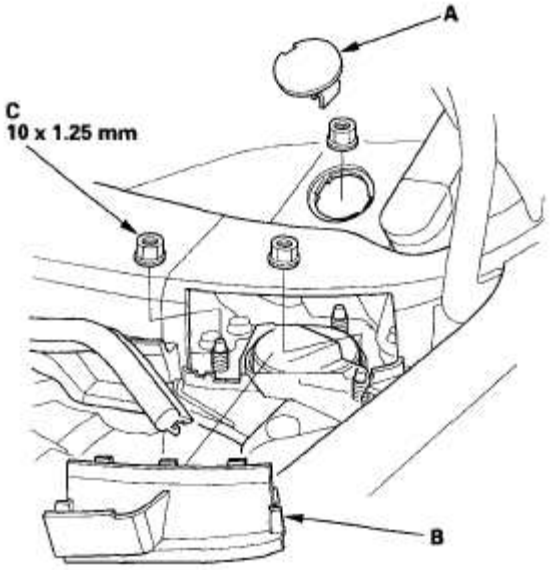

Fig. 34: Identifying Service Cap And Lid

7. Remove the three flange nuts (C) from the top of the damper.

NOTE:

- **Damper springs are different, left and right. Mark the springs L and R before you continue.**
- **Be careful not to damage the body.**

8. Remove the damper assembly (A).

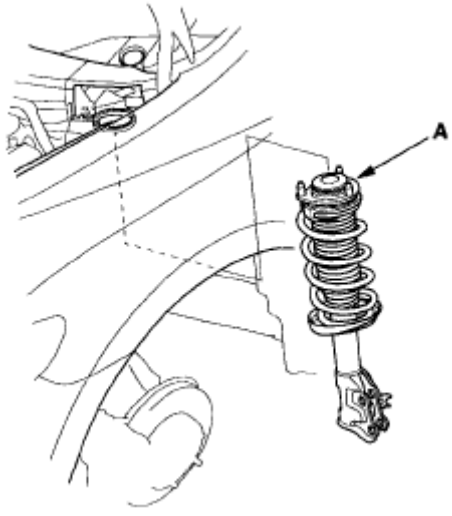

Fig. 35: Identifying Damper Assembly

INSTALLATION

1. Install the damper assembly (A) onto the frame.

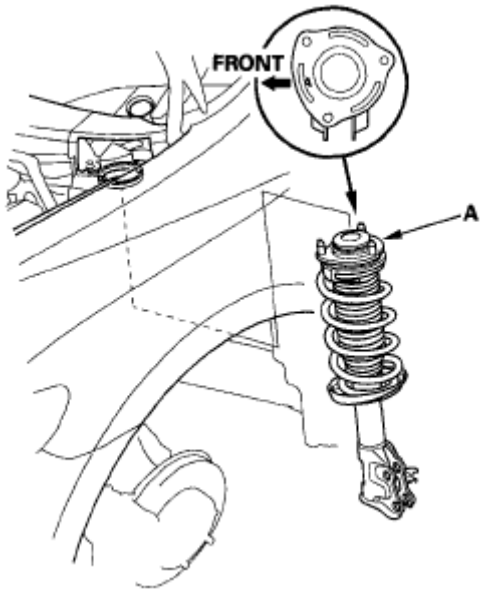

Fig. 36: Identifying Damper Assembly

2. Loosely install the new flange nuts (A).

NOTE: Install the service cap (B) and the lid (C) after tightening the flange nuts to the specified torque value.

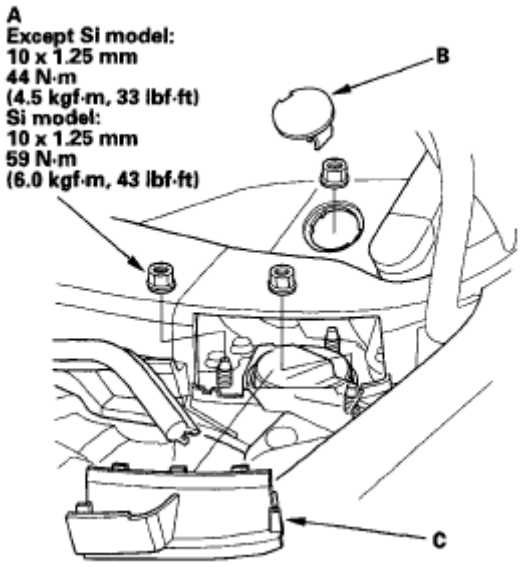

Fig. 37: Identifying Flange Nuts (With Torque Specifications)

3. Loosely install new damper pinch bolts (A) and new self-locking nuts (B) to the damper (C).

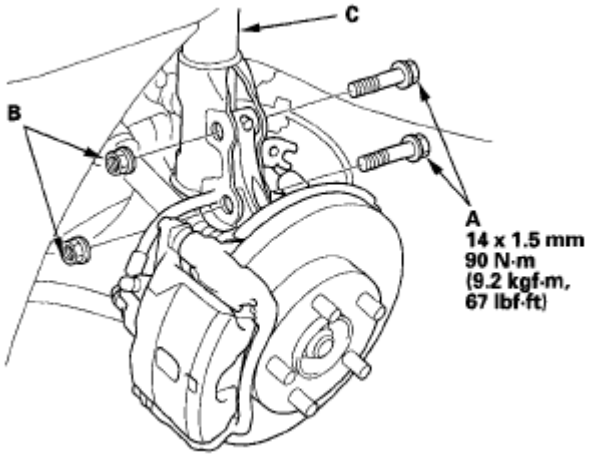

Fig. 38: Identifying Damper Pinch Bolts (With Torque Specifications)

4. Install the wheel sensor harness clip (A) and the brake hose bracket (B) to the damper (C).

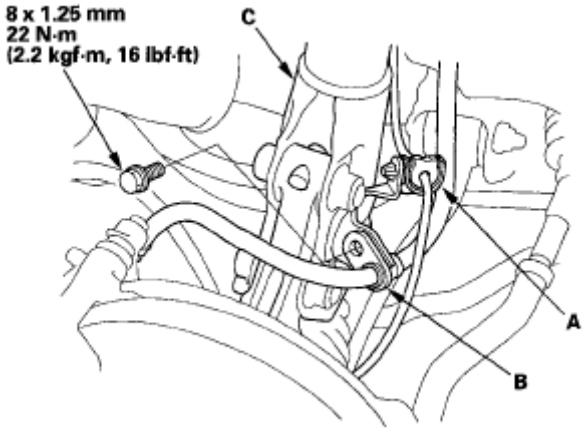

Fig. 39: Identifying Wheel Sensor Harness Clip And Brake Hose Bracket (With Torque Specifications)

5. Raise the front suspension with a floor jack to load the suspension with the vehicle's weight.
6. Tighten the damper pinch bolts to the specified torque value.

7. Tighten the flange nuts on top of the damper to the specified torque value.
8. Install the service cap and the lid.
9. Clean the mating surface of the brake disc and the inside of the wheel, then install the front wheel.
10. Check the wheel alignment, and adjust it if necessary (see **WHEEL ALIGNMENT**).
11. Turn the ignition switch to ON (II), then turn the windshield wipers to the default positions, and turn the ignition switch to LOCK (0).

DAMPER/SPRING DISASSEMBLY, INSPECTION, AND REASSEMBLY

EXPLODED VIEW

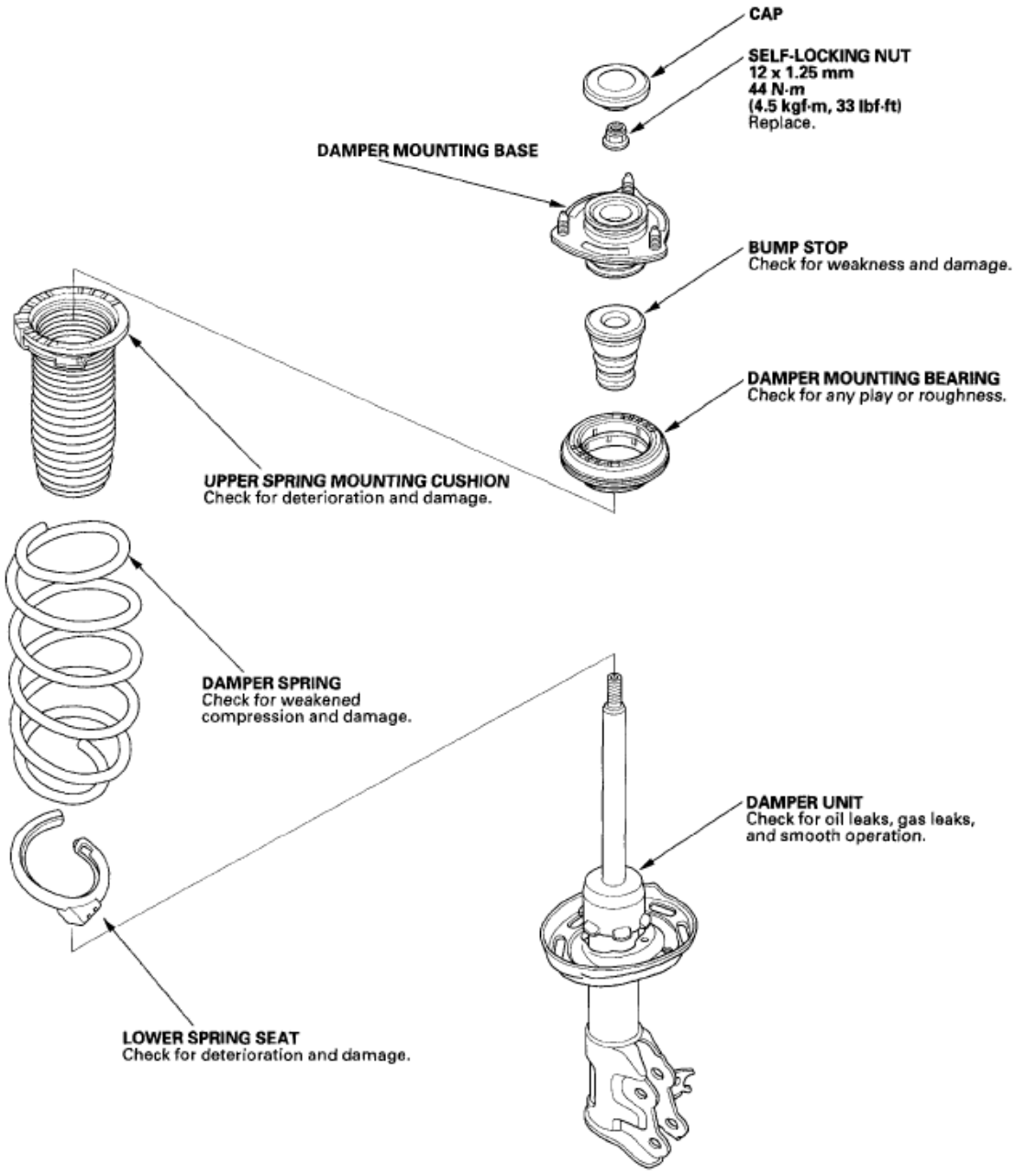

Fig. 40: Exploded View Of Damper/Spring (With Torque Specifications)

Special Tools Required

Strut nut adapter 07AAA-SVAA100

NOTE: When compressing the damper spring, use a commercially available strut spring compressor (Branick MST-580A or

Model 7200, or equivalent) according to the manufacturer's instructions.

DISASSEMBLY

1. Remove the cap (A) from the top of the damper.

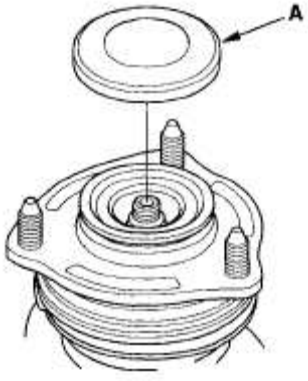

Fig. 41: Identifying Damper Cap

2. Compress the damper spring, then remove the self-locking nut (A) using the strut nut adapter (B) while holding the damper shaft with a hex wrench (C). Do not compress the spring more than necessary to remove the nut.

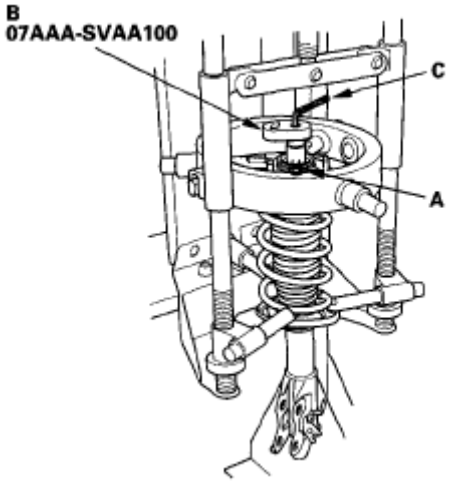

Fig. 42: Identifying Compress Damper Spring

3. Release the pressure from the strut spring compressor, then disassemble the damper as shown in the Exploded View.

INSPECTION

1. Reassemble all the parts, except for the upper spring mounting cushion, the bump stop, and the damper spring.
2. Compress the damper assembly by hand, and check for smooth operation through a full stroke, both compression and extension. The damper should extend smoothly and constantly when compression is released. If it does not, the gas is leaking and the damper should be replaced.

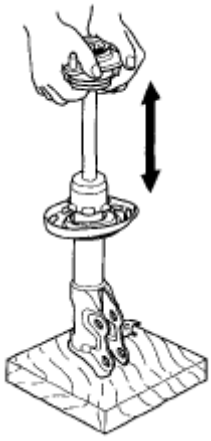

Fig. 43: Identifying Compress Damper Assembly By Hand

3. Check for oil leaks, abnormal noises, or binding during these tests.

REASSEMBLY

1. Install the damper spring (A) on the upper spring mounting cushion (B) by aligning the ledge portion (C).

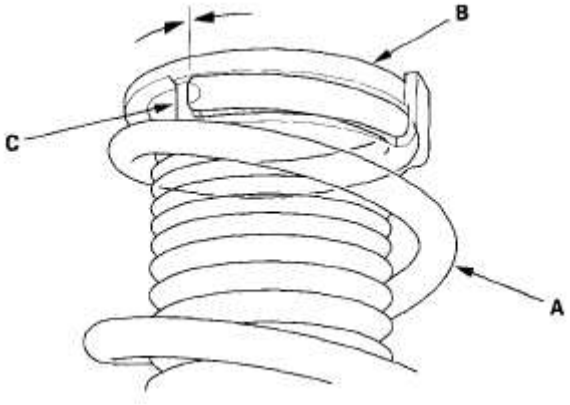

Fig. 44: Aligning Ledge Portion

2. Compress the damper spring.
3. Install all the parts except the damper mounting washer and self-locking nut onto the damper unit (A) by referring to the Exploded View.

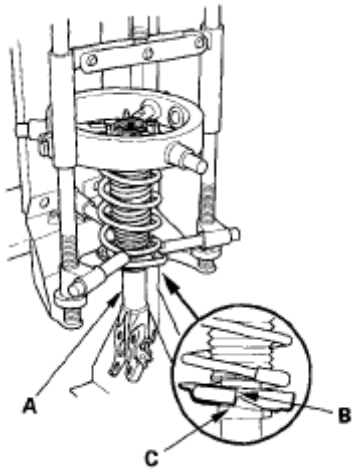

Fig. 45: Exploded View Of Damper

4. Align the bottom of the spring (B) and the stepped part of the lower spring seat (C).
5. Align the damper bracket (A) and the damper mounting base (B) so that the "delta" stamp (C) points toward the front.

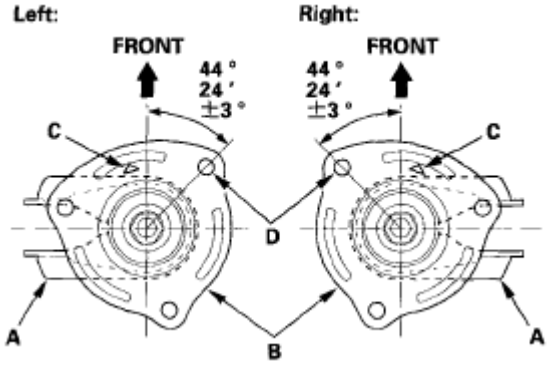

Fig. 46: Aligning Angle Of Strut Bolt On Damper Bracket

6. Align the angle of the strut bolt (D) on the damper bracket as shown.
7. Install a new self-locking nut (A).

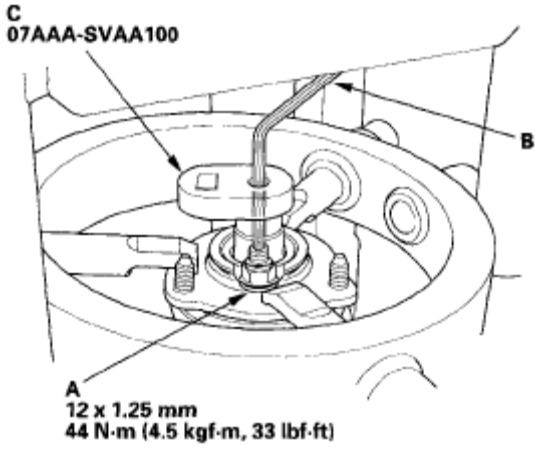

Fig. 47: Identifying Self-Locking Nut (With Torque Specifications)

8. Hold the damper shaft using a hex wrench (B), and tighten the new self-locking nut using the strut nut adapter (C) to the specified torque value.
9. Install the cap.